

An analysis of Dyadic relationship between Islamic Banks and Takaful Operators and their impact on Economic stability

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Abstract

Purpose

The objective of this study is examined the dyadic relationship between Islamic banks and takaful operators and their impact on economic stability of Pakistan. It is observed that Islamic finance industry demand increase from last one decade in Pakistan. The Islamic finance industry has significant importance in existing market through multidimensional contributions and deposits.

Design/Methodology/Approach:

This study takes five Islamic banks and five takaful companies operating in Pakistan from 2009 to 2017. This study implies panel data regression through random effect model (REM), fixed effect model (FEM) and generalized methods of moments (GMM) to better understand the time invariant and intercept value among variables.

Findings:

The results reveal with these remarks that Islamic banks have a relatively more positive and significant contribution toward economic stability as compared to takaful companies. Whereas, mean deviation of takaful operators is more near to the origin as compared to Islamic banks.

Originality/Value:

It is observed from last couple decades that Islamic finance industry has increased in capital inflows as relatively compared to conventional counterpart. This study is a comparative analysis between both Islamic banks and Takaful companies' performances in Pakistan.

Introduction

Islamic financial institutions are rapidly expanding in terms of product lines, sectors and geography. Previously, in 1070's, there were only Islamic banks offering ijarah and Murabaha based products (Othman and Mara, 2013) operating in GCC and other Muslim countries. But now other sectors like takaful, Islamic microfinance, mutual funds, real estate, shariah screening, and shariah auditors are also operating. Islamic banks are now offering new product lines based on Salam. Istisna, wakala, wadiah offered (Ullah and Patel, 2011). In addition to GCC countries, Islamic banks are now operating in Singapore, UK, Australia, Japan, Russia, Germany and several Asian states (Iqbal, 1997). All these institutions are adding into the economic development and they supplement each other in delivery. Moreover, due to asset backed transactions, it also promote real business activities, thus contributing into the economy (Haiss and Sumegi, 2008; Lee, 2011; Asif, Ather, and Isma, 2014; M. S. A. Majid, 2008; Muye

and Hassan, 2016). Due to participatory nature of transaction and profit and loss sharing, it promotes circulation of wealth, thus adding into the economy.

Insurance is considered to be an important element of financial system. It promotes trade and development through mitigating risks of financial losses due to various physical hazards. Since insurance doesn't conform to the religion Islam due to presence of prohibited elements like interest, uncertainty and gambling (Farooq, Chaudhry, Alam & Ahmad, 2010; Maysami & Kwon, 1999), therefore many Muslims avoid the use of insurance. Through research, Muslim scholars developed system of takaful or Islamic insurance which lacks the prohibited elements and confirms to the Islamic teachings. Globally, takaful is growing exponentially and has a double digit growth (World Takaful Report, 2016). Takaful is playing an important role in the financial inclusion of the people who were previously excluded due to non shariah compliant nature of insurance. Takaful provides life as well as non-life or general coverages. In general takaful, in case of loss to the business due to fire, earthquake, burglary, floods, voltage fluctuation and other hazards, takaful companies compensate businesses through paying claims and help in continuation of the businesses (Ward and Zurbrueg, 2000). In absence of takaful, businesses had to set aside a considerable amount of money for managing the losses that might occur. While takaful costs relatively lesser amount and the setting aside money is also invested in business bringing more return and expansion (Malik and Ullah, 2016).

Like general takaful, life takaful also called family takaful also plays an important role in economy through promoting savings and ensuring circulation of wealth (Ryan, 1994). Clients pay small and large regular contributions (premiums) in life coverage for longer periods which are onward invested by companies in different areas for returns. They invest in Islamic financial institutions on short and long term basis which onward provide funding to businesses for establishing new and expanding existing businesses. Takaful companies also invest in capital markets and add real estate. Takaful also supports the Islamic banks when they provide financing to their clients activities. Takaful companies cover properties of borrowers, mortgaged and pledged with the Islamic banks and leasing companies and promote business. Without takaful coverage, Islamic banks seldom provide financing to their clients. Insurance and takaful being an effective part of financial system and various studies have found a positive impact of takaful and insurance on economic growth and findings show that there is a positive relationship between insurance and economic growth. Still several studies show insignificant relationship. So, a consensus has not reached on its positive relationship of insurance and takaful with economic growth.

Studies conducted by Haiss and Sumegi (2008), Kugler and Ofoghi (2005), Outreville (1990), Vadlamannati (2008), Cull et al. (2003), Chen et al (2012), Lee (2011) and Asif et al. (2014) finds that insurance has a positive impact on business growth and economy. While some other studies including Webb et al. (2002), finds that there is no significant relationship between insurance and economic growth. Relatively lesser studies have been carried out about impact of takaful on economic development. Muye and Hassan, (2016) finds a positive relationship between development of takaful and economic growth.

Being an emerging business, takaful operators are still facing the challenges of optimal business structure, price competition from conventional insurance companies and regulatory issues. Still takaful sector is a growing area and companies are bringing good profit for their owners (World Takaful report, 2016).

Beside other institutions, *insurance and reinsurance companies are considered* vital for economic development (Outreville, 1990; Arena, 2008; Vadlamannati, 2008). They also support the economic system of a country and encourage circulation of wealth. At one side, they provide a choice to clients for savings in shariah compliant mode (Ryan, 1994) while at the other side, they compensate the financial losses of the businesses due to fire, earthquake, and floods and keep their business continue (Ward and Zurbrueg, 2000). Clients pay their savings in the form of contributions (premiums) to takaful companies while there is always a time gap between premium and claim payment. Takaful Companies utilize this time gap and invests the collected premiums in avenues where they can get best and safe return. Mostly, they invest in Islamic banks through murabaha and ijarah income certificates, sukuk, stock of companies which are engaged in shariah compliant businesses, mutual funds etc. Moreover, takaful companies provide financial protection to business enterprises like factories, distribution, transport and many other businesses against the risk of fire, natural calamities, riots and many others. They compensate the business if any loss occurs due to these risks and keep the businesses going, thus adding to the national productivity and circulation of wealth.

Takaful business was first commenced in 1979 at Sudann (Kwon, 2007; Sherif and Hussnain, 2017). Since Muslims avoid conventional insurance due to presence of riba, uncertainty and gambling, therefore, as an alternative to insurance, takaful was developed as it doesn't invite objections by the religious scholars (Farooq et al 2010). Moreover, takaful companies started establishing in Malaysia after the passage of Takaful Act ordinance introduced. Over the period of 40 years, there were more than 300 takaful companies operating globally (World Takaful Report, 2016).

First Islamic bank was established in Egypt in 1964 (Idiab and Ahmad, 2011). Dubai Islamic bank, the first Islamic commercial bank was established in 1975 and dozens of Islamic banks were established after 1980. (Shinsuke, 2012; Okon, 2013). Presently more than 500 Islamic financial institutions are operating globally (Qorchi, 2005). In Pakistan, assets of the Islamic banking industry up to June, 2018 reached to Rs 2482 billion while market share of Islamic Banks has reached to 12.9 percent in assets and 14.8 percent in deposits of the total banking industry. The number of fully dedicated Islamic banks are five (5) and number of conventional banks with Islamic banking branches are sixteen (16), whereas, the total Islamic banking branches are 2,685 (SBP, 2018).

In last quarter of 2018, assets of Islamic banks operating in Pakistan increased by 8.1% i.e. from Rs. Rs. 200 billion to 2658 billion. Deposits grew by 9.9% from Rs. 198 billion to Rs. 2203 billion while in banking market, share of Islamic banks in terms of deposits reached to 15.5% and assets reached to 13.5%. Looking at different deposit products, it is found that increase in current and fixed deposit is 12.3% and 8.9% respectively and saving deposits enhanced by 3.1%. Profitability of islamic banks in last quarter of

2018 also increased as recorded profit before tax was found to be Rs. 34 billion while last year in the same quarter, it was Rs. 23 billion (SBP, 2018).

World average penetration of insurance is around 6% of its gross domestic product (GDP). In 2014, global insurance premium totaled to USD 4778 billion. (Sigma Study, 2015 Swiss Re Insurance Company). Insurance penetration in India is around 3.9% of its GDP. While in Pakistan, insurance penetration is less than 1% of its GDP (Insurance association of Pakistan, 2017). One of the major reasons for such a low penetration is the declaration of insurance as prohibitive by religious scholars due to presence of such elements which are not acceptable in Islam. Ismail et, al. (2017) reports world total takaful contribution was 14.9 billion US\$ in 2015 with a growth rate of 14%. General takaful contribution is around 83% while life takaful has a share of 17%. In Pakistan, takaful was introduced in 2006. In almost eight years, market share of takaful has reached to 5% and is still growing. Moreover, the global takaful market is growing at a rate of 14%, while conventional insurance is growing at 5.5% (Earnest & Young, 2014). Pakistan is a Muslim majority country having around 200 million population with 97% Muslims. It is located in south east part of Asia. In Pakistan more than 40 insurance companies are operating.

In 2014, insurance companies were allowed to establish their window takaful operations. Presently there are five dedicated takaful companies and more than 15 insurance companies are providing window takaful services (SECP, 2014). Insurance penetration in Pakistan is less than 1% of GDP which is one of the lowest in the region. Takaful companies hold almost 5% of the total insurance / takaful market (Insurance Association of Pakistan, 2016). Takaful is growing at a much higher rate than insurance, so it is important to investigate the effects of religious beliefs on financial exclusion. While the increasing growth of takaful is indicating its acceptability among people, it is important to find its impact on economic growth.

Review Of Empirical Literature Review

In 1979, First takaful company was established in Sudan (Kwon, 2007; Sherif and Hussnain, 2017). However, Malaysia leads family takaful market while GCC leads general takaful market. Takaful companies started establishing in Malaysia after the passage of Takaful Act 1984 (BNM, 1984). Over the period of 40 years, there were more than 300 takaful companies operating globally (World Takaful Report, 2016). In Pakistan, first general and family takaful company was established in 2006 and 2008 respectively and first window takaful was established in 2014. Presently five dedicated and more than fifteen window takaful operators are working in Pakistan.

Haiss and Sumegi (2008) explored the effect of insurance on economic growth. They analyzed twenty nine (29) European countries for the period 1992–2005 and found that economic growth increases with an increase in insurance and economic growth. A study conducted by Kugler and Ofoghi (2005) using data of insurance companies of UK found that with compensating the financial losses and promoting investments, size of the insurance market has a positive effect on economic growth. They studied the data for the period 1966–2003 of market wise net premium written by UK based insurance companies

using Johansen's *Trace I* and max I co-integration tests. Outreville (1990) analyzed data of fifty five countries and found a higher increase in per capita liability premium with corresponding increase in GDP. Vadlamannati (2008) conducted a study in India and found that a positive relationship growth of insurance and economy. A study was carried out by Cull et al. (2003) for finding the effect of government funded deposit insurance and financial growth by using Tobit model analysis via maximum likelihood and the Heckman two-step method. The results show that financial development increase with increase of government funded deposit insurance, where implementation of laws is better while promotes inefficiencies and law implementation is not satisfactory.

Chen et al (2012) carried out an investigation and found the positive relationship in the growth of life insurance market and economic development. They analyzed panel data of sixty countries for the period covering 1976 to 2005. Lee (2011) found that growing insurance market also increased economic growth by analyzing the data collected from life and general insurance companies. Anderson et al (2005) indicated that banking contributes into the economic development while insurance doesn't contribute into the economic growth. They used data of insurance companies (premium per capita) and banks (bank credit) of Sweden for the period 1830–1998. Asif et al. (2014) identified that deposits of Islamic banks have a positive relationship with economic growth. They used loans given to the customers by the conventional banks and deposits of Islamic banks as dependent variables while foreign direct investments and interest rate as independent variables. They used for the period 2002–2010. Muye & Hassan (2016) found the positive impact of takaful on economic growth by analyzing the data of 22 countries from 2004 to 2012. Muye & Hassan (2016) found a significant positive relationship of Islamic insurance with trade, economic growth using panel data of 22 countries covering nine years period from 2004 to 2012. They also found a positive relationship between Islamic insurance premiums and economic growth.

While comparing islamic and conventional banks from risk perspective, Al Rahahleh, Bhatti, Misman, (2019), conducted a study using comparative literature review along with tabular methodology approach in which they compared islamic and conventional banks with respect to risk exposure,. They find that IBs are exposed to a higher level of risk because in conventional banks, relationship between client and bank is always lender – borrower and in IBs customer can be an investor and entrepreneur.

Mansor, Al Rahahleh & Bhatti (2019) compared the performance of Islamic and conventional mutual funds before and after crisis during the period 1990 to 2009 and find that Islamic mutual funds (IMF) performed a little better than conventional mutual funds (CMF). The study also finds that on a particular market trend, universally, there is universally no better performer between IMF and CMF.

Azmat, Bhatti, & Ghaffar (2020) compared the profitability of Islamic and conventional banks while considering the higher costing in Islamic banks due to religiosity. They collected data from 17 muslim countries having both islamic and conventional banking for the period from 2000 to 2015. The study finds that asset and liability side returns of Islamic banks are greatly affected in competition with conventional banks, resultantly, Islamic banks are losing market power due to price competition.

Data Description And Methodology

This study focuses on five Islamic banks (IB) and five takaful companies (TC) operating in Pakistan from 2009 to 2017. However, these five IB's consist of Al Baraka Bank Pakistan Limited (ABPL), Bank Islamic (BI), Burj Bank (BB), Dubai Islamic Bank Pakistan Limited (DIBPL) and Meezan Bank (MZ). Whereas, the takaful companies are as Dawood Family Takaful Limited (DFTL), Pak-Kuwait Takaful Company Limited (PKTCL), Pak-Qatar General Takaful (PQGT), Pak-Qatar Family Takaful (PQFT) and Takaful Pakistan Limited (TPL). The data has been taken from different sources such as, annual reports of both institutions, Economic Survey of Pakistan, State Bank of Pakistan's website, and World Development Indicators (WDI) to test the robustness among data set and variables.

This study uses percentage of GDP as dependent variable, total deposits of IB as percentage of GDP and total contribution of TC as percentage of GDP take as independent variables. Whereas, GDP per capita income as proxy of economic prosperity (EP), foreign private investment (FPI) includes (foreign direct investment + foreign portfolio investment) as percentage of GDP, Karachi inter-bank offering rate (KIBOR) used as proxy of Interest rate (IR), the percentage change in consumer price index as proxy of Inflation (INF) and finally, the secondary level of education completion rate is used as proxy for level of awareness and risk aversion (ARA).

Arellano (2003) and Andre et al, (2013) explained that panel data method is more effective and appropriate as relatively compared to pooled OLS model. Moreover, this panel data technique does not reflect the heterogeneity in the sample. Furthermore, fixed effect model and random effect model give good estimation, when the applications of panel data method justified beside the pooled OLS model. Greene (2003) stated that the unobserved variables didn't include in both models of panel data. According to Cai et al, (2008) describe that if all possible explanatory variables are not included in the entire equation, the unobserved variables are correlated with observed variables and in this case fixed effect model is the best choice. Whereas, random effect model is good choice in rest of cases. Concretely, this study proposed the below two models to estimate and analyze the effects of Islamic financial institutions and takaful companies on economic stability respectively.

$$GDP_{it} = \alpha_{it} + \beta X_{it} + IB_{it} + \delta_i + \varepsilon_{it} \quad (1)$$

$$GDP_{it} = \alpha_{it} + \beta X_{it} + TC_{it} + \delta_i + \varepsilon_{it} \quad (2)$$

In the above two equations the subscripts i and t represent the Islamic financial institutions and takaful companies respectively, where $i = 1 - 10$ and $t = 2009 - 2017$. The percentage of GDP treated as dependent variable in both cases over the previous period. Whereas, X_{it} represents the explanatory variables in that groups through a vector that includes the variables such as, (EP, FPI, IR, INF and ARA). The IB_{it} represents the Islamic banks and TC_{it} symbolizes the variable related of takaful companies. Finally, δ_i denotes the institutional effects, and ε_{it} is the error term.

This study implies the Wooldridge (2002) test to identify the autocorrelation in the model. This test describes that if we reject the null hypothesis (H_0) then our data set for this study suffers autocorrelation, whereas, if we accept the null hypothesis then the results are adverse Eichler and Maltritz (2013). Moreover, this study also used Wald test to check the heteroscedasticity in the residual of model. This test indicates that if null hypothesis shows error variance is constant and rejection of (H_0) designates existence of heteroscedasticity Baum (2001).

Null Hypothesis 1

an increase in the Islamic banks deposits increase the economic stability of Pakistan

Null Hypothesis 2

an increment in total contribution of takaful companies boost the economic stability of Pakistan.

Descriptive Analysis

The purpose of this descriptive statistics is to explain and summarize the data through formal way. This test further informs us the usage of parametric and non-parametric tests. It is essential for qualitative and quantitative research to identify that sample of our study is normally distributed. It also describes the characteristics of the entire sample or population. The mean tables explain the average values among the variables. The standard deviation tells us the deviation of each mean with respect to each variable. The maximum and minimum values indicate that range among the variables in the particular sample.

Table 1
Descriptive Statistics

Variables	Observations	Standard			
		Mean	deviation	Minimum	Maximum
GDP (%)	45	0.051	0.242	0.001	2.984
IFI/GDP (%)	45	0.004	0.002	0.003	0.874
TC/GDP (%)	45	0.085	0.014	0.001	0.421
FPI/GDP (%)	45	0.007	0.017	0.073	0.347
IR (%)	45	0.054	0.039	0.016	0.257
INF (%)	45	0.234	0.057	1.976	3.412
EP (%)	45	0.0342	0.643	0.039	0.453
ARA (%)	45	0.104	0.047	0.079	0.417

The table shows the summary statistics for the variables included in the analysis. The table displays the number of observations as well as the mean, standard deviation, minimum and maximum descriptive statistics. We show the values for the Islamic financial institutions relative to GDP, takaful contribution relatively GDP, foreign private investment (FPI) relative to GDP, the percentage change in overall interest rate, the percentage change occurs inflation, the percentage occurs in economic prosperity, and overall percentage shows in awareness and risk aversion in Pakistani community.

Correlation Analysis

The below table summarizes the results of the correlations association among the variables. The Pearson correlation (PC) indicates at what extent, there is an association of population exist between dependent variable with other independent and explanatory variables. This study develop a hypothesis in order to better understand the correlation among variables. The null hypothesis shows that there is zero correlation between dependent and independent variable. Which means that no relationship exist between economics stability (GDP), Islamic financial Institutions (IFI) and takaful contributors (TC) and other explanatory variables. Whereas, the alternative hypothesis of this study explains that a correlation present between IFI's, TC and GDP. The below table clearly indicates that a correlation among variables, it could be positive or negative relationship, but no zero relationship found here. The dependent variable of this study GDP percentage, while both independent variables are total deposits of IFI's and total contribution of takaful companies over percentage of GDP respectively. Whereas, rest of all explanatory variables are foreign private investment over GDP percentage, percentage in interest rate, inflation, economic prosperity and awareness of risk aversion respectively show at some extent of correlation among them.

However, the results show low correlations between the dependent and the explanatory variables. Nevertheless, the panel data methodology allows us to consider the unobservable heterogeneity among the variables. Whereas, we do not appreciate high correlations among the explanatory variables that could lead to multicollinearity.

Table 2
Correlations Analysis among Variables

Pearson's Correlations	1	2	3	4	5	6	7	8
1 GDP (%)	1.000							
2 IFI/GDP (%)	0.024	1.000						
3 TC/GDP (%)	0.009	0.542	1.000					
4 FPI/GDP (%)	0.065	0.696	0.542	1.000				
5 5 IR (%)	-0.142	0.054	0.054	0.432	1.000			
6 6 INF (%)	-0.054	0.081	-0.141	-0.003	-0.632	1.000		
7 7 EP (%)	0.198	0.354	-0.412	0.832	0.654	0.541	1.000	
8 ARA (%)	0.100	0.213	0.332	0.394	0.432	0.319	0.457	1.000

Panel data Regression of Islamic Financial Institutions and Economic Stability

The below table shows some facts and figures regarding panel data regression of Islamic financial institutions and economic stability distinguish among stated variables. This particular panel regression specifies that combining all the variables through this channel to eliminate the heterogeneity or individually that may exist among variables. The fixed effect model (FEM) allows the variables for heterogeneity or individually among variables by permitting them for their own intercept value. Furthermore, these variables may have different intercept value. Moreover, the term fixed effect is due to the fact that although the intercept may differ across variables such as dependent variable. Whereas, the intercept does not vary over the time and it is also called time invariant. In random effect model (REM) all variables have a common value for intercept. Finally, the generalized methods of moment (GMM) is a technique of statistics, where we combine the observed economic data with particular information from moment's conditions of population. This technique further produces the estimation of unknown parameter of that particular study. However, as we can see in the empirical analysis the multicollinearity diagnostics (Variance Inflation Factor) and tolerance indicate the absence of multicollinearity among the right hand side variables.

The result of panel data regression expresses that FPI as percentage of GDP is positively significant in model (5) of GMM at 10 percent level of significance. It means that foreign private investment has reliable contribution toward IFI's and economic stability in Pakistan. The KIBOR as interest rate and inflation are also significant in FEM model (4) and (3) at 5 percent respectively. The GDP per capita income as proxy of economic prosperity shows positively significant in model (5) GMM, which leads toward a conclusion that as GDP per capita income increase it boosts economic stability. The level of secondary education completion used as proxy of awareness and risk aversion and significant in model (1) of REM and model (2) & (4) of FEM. Islamic financial institutions are also shown significant contribution toward economic development in model (1) of REM and model (2) & (4) of FEM. The

previous year lagged structure of dependent variable as GDP (-1) is negatively significant in GMM model (5). However, the constant values are significant but negative sign in all five models. The time dummy is only used in model (3) for fixed effect model to better understand the variations of intercept value through time invariant. Whereas, model (4) indicates the positive trend among all models used in this analysis. The R-square values show appreciate, which means that the models of this study are best fitted.

Table 3
Panel data Regression of Islamic Financial Institutions and Economic Stability

D.V (GDP %)	Model 1 Random effects	Model 2 Fixed effects	Model 3 Fixed effects	Model 4 Fixed effects	Model 5 GMM	VIF (Tolerance)
FPI/GDP	0.943 (1.543)	1.623 (1.126)	2.234 (1.763)	1.437 (1.782)	2.711*** (0.963)	1.51 (0.61)
IR	0.341 (1.537)	0.435 (1.19)	1.876 (3.90)	0.0362** (0.459)	0.545 (0.986)	1.42 (0.71)
INF	0.567 (0.983)	0.675 (0.940)	0.014** (0.237)	0.281 (1.023)	1.174 (1.872)	1.12 (0.37)
EP	0.654 (0.897)	0.542 (0.657)	0.873 (1.246)	1.114 (1.476)	0.082** (0.265)	2.76 (0.52)
ARA	0.031* 0.054	0.203* (0.105)	0.806 (1.342)	0.0811** 0.127	0.832 (1.287)	1.76 (0.39)
IFI	0.087** (0.058)	0.0763** (0.090)	0.473 (0.0805)	0.071** (0.256)	0.083 1.254	2.16 (0.31)
GDP (-1)					-0.462*** (0.0451)	
Constant	-0.0532* (0.198)	-2.982*** (0.871)	-3.134*** (0.713)	-3.532*** (0.721)	-4.321*** (0.784)	
Time Dummies	NO	NO	YES	NO	NO	
Trends	NO	NO	NO	YES	NO	
N	45	45	45	45	45	
R square	0.057	0.311	0.421	0.387		
Significant level indicates as 1%, 5% and 10% as *, ** and ***						

Panel data Regressions of the Takaful Companies on Economic Stability

The below Table 4 shows information regarding panel data regressions of the takaful companies and its impact on economic stability in Pakistan. The foreign investment plays a vital role in development of any nation, especially developing countries. The FPI value shows positively significant at 5 percent in GMM model. While the KIBOR as interest rate and inflation as consumer price index both are positively impact on economic progress in model (4) & (3) of FEM. The economic prosperity describes that 7.4 percent positive contribution with reference of takaful companies toward economic development in Pakistan. Whereas, secondary education completion as proxy of awareness and risk aversion significant at 1 percent in model (1) of REM and model (2) of FEM. The one independent variable of this study as takaful companies have effective contribution toward stability of economy in model (1) of REM, model (2) & (4) of FEM at 1 and 5 percent level of significance. Moreover, all variables are significant but negative sign in constant ratio. We find only time dummy in model (3) and trends in model (4) of FEM respectively. Finally, R-square values are good and effective for stated models of this study.

Table 4
Panel data Regressions of the Takaful Companies on Economic Stability

D.V (GDP %)	Model 1 Random effects	Model 2 Fixed effects	Model 3 Fixed effects	Model 4 Fixed effects	Model 5 GMM	VIF (Tolerance)
FPI/GDP	0.546 (0.954)	2.123 (2.421)	1.198 (2.287)	1.981 (1.345)	1.543** (0.452)	1.04 (0.42)
IR	0.398 (1.117)	0.515 (1.57)	1.165 (2.87)	0.0256** (0.459)	0.678 (0.583)	1.67 (0.53)
INF	0.721 (0.913)	0.855 (0.940)	0.076** (0.372)	0.281 (1.023)	1.932 (2.272)	1.42 (0.62)
EP	0.954 (0.761)	0.672 (0.932)	0.921 (1.547)	1.454 (1.985)	0.074** (0.355)	2.54 (0.17)
ARA	0.026* 0.087	0.542* (0.317)	0.873 (1.542)	0.914 1.324	0.398 (1.121)	1.51 (0.51)
TC	0.078** (0.062)	0.0562** (0.042)	0.532 (0.065)	0.047** (0.346)	0.357 1.467	2.58 (0.38)
GDP (-1)					-0.496*** (0.062)	
Constant	-0.048* (0.287)	-2.651*** (0.463)	-3.473*** (0.821)	-3.483*** (0.632)	-4.652*** (0.984)	
Time Dummies	NO	NO	YES	NO	NO	
Trends	NO	NO	NO	YES	NO	
N	45	45	45	45	45	
R square	0.062	0.436	0.512	0.462		

Significant level indicates as 1%, 5% and 10% as *, ** and ***

Panel data regressions of Islamic Financial Institutions and Takaful Companies on Economic Stability

The Table 5 shows a joint impact of both Islamic financial institutions and takaful companies on Pakistan economy in panel regression data. However, FPI is continuously leading with positive impact in model (5) at 10 percent significance level. The interest rate as KIBOR and consumer price index as inflation have significant contribution at 5 percent in model (3). Whereas, economic prosperity has also

effective contribution for both IFI's and TC in model (2) of FEM and model (5) of GMM at 5 percent respectively. The results of awareness level and risk aversion express that most of depositors of IFI's and contributors of TC have sufficient education level as it is stated in model (1) of REM, model (2) & (4) of FEM at 5 percent of significance. Islamic financial institutions has relatively more contribution to takaful companies for development of Pakistan economy. Whereas, IFI's model significant at REM and FEM with same 5 percent level of significance. While, TC has significant in different levels in both REM and FEM such as 1 and 5 percent respectively. In constant ratio REM is significant at 1 percent and FEM and GMM are 10 percent level of significant. Finally, the dependent variable as percentage of GDP indicates a previous year value in GMM model at 10 percent with negative sign. The models (3) and (2) have positive association between time dummies and trends respectively. The value of R-square in REM is less as relatively compared to FEM models and overall model is best fitted.

Table 5

Panel data regressions of Islamic Financial Institutions and Takaful Companies on Economic Stability

D.V (GDP %)	Model 1 Random effects	Model 2 Fixed effects	Model 3 Fixed effects	Model 4 Fixed effects	Model 5 GMM	VIF (Tolerance)
FPI/GDP	0.456 (1.596)	1.432 (1.436)	2.451 (1.438)	1.651 (1.835)	2.368*** (0.824)	1.62 (0.73)
IR	0.761 (1.837)	0.638 (1.328)	0.025** (0.4181)	1.154 (2.138)	0.672 (0.467)	1.37 (0.91)
INF	0.439 (0.549)	0.573 (0.853)	0.023** (0.341)	0.320 (1.174)	1.274 (1.451)	1.421 (0.461)
EP	0.512 (0.873)	0.039** (0.847)	0.861 (1.259)	1.136 (1.986)	0.073** (0.355)	2.64 (0.62)
ARA	0.047* 0.054	0.341* (0.204)	0.769 (1.275)	0.065** 0.237	0.643 (1.384)	1.54 (0.49)
IFI	0.076** (0.049)	0.074** (0.084)	0.562 (0.056)	0.065** (0.316)	0.103 1.344	2.41 (0.46)
TC	0.039* 0.048	0.873 (0.984)	0.579 (1.355)	0.057** 0.357	0.543 (1.544)	1.09 (0.35)
GDP (-1)					-0.356*** (0.0431)	
Constant	-0.045* (0.238)	-2.546*** (0.941)	-3.236*** (0.652)	-3.342*** (0.681)	-4.121*** (0.654)	
Time Dummies	NO	NO	YES	NO	NO	
Trends	NO	YES	NO	NO	NO	
N	90	90	90	90	90	
R square	0.051	0.451	0.437	0.417		
Significant level indicates as 1%, 5% and 10% as *, ** and ***						

Conclusion

The purpose of this study is to investigate the joint relationship of both Islamic financial institutions and takaful companies and their impact on Pakistan economy. However, we didn't find any comprehensive study on this topic to address this particular kind of work. The premise of this study is to fill the entire gap and adhere the problems occur in the system. This study takes five different Islamic banks and takaful companies to conduct this study into a particular direction and check its impact on economic stability. This study uses dependent variable as percentage of GDP, total deposits of IFI and total contribution of TC take as independent variables. Whereas, economic prosperity, foreign private investment (FPI), Karachi inter-bank offering rate (KIBOR), Inflation and finally, the level of awareness and risk aversion (ARA).

The data has been taken from different sources such as, statistics house, hand book of Pakistan economy, annual financial reports and economic survey's. Whereas, the annual data set consists of 2009 to 2017. This study develops two different hypothesis for both Islamic financial institutions and takaful companies. However, we accept our both null hypothesis (an increase in the Islamic banks deposits upsurge the economic stability of Pakistan) and (an increase in the takaful company's contribution boost the economic stability of Pakistan). The results of Pearson correlation designates that there is strong correlation between dependent and independent variables. Whereas, a weak or less correlation found among dependent variables and explanatory variables.

The panel data regression analysis for Islamic banks and takaful companies and their impact on economic stability confirms that IFI's and TC have positive significant impact on economic development especially in FEM model, but minor impact shown in REM Model among variables. Whereas, dependent variables shows significant but negative relationship with previous year in GMM model. The overall results express that IFI's has more contribution to build the economy as relatively compared to takaful companies. While the result of takaful companies in all models reveals near the center of deviation as compare to Islamic banks results. The deviation scores subtract the mean from each variable. They are called deviation score because they indicate how far each value deviates or departs from the mean.

Declarations

Availability of data and material

The data is available on request

Competing interests

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Author's contributions

Mr. Malik Shahzad has done part of Introduction and Literature review, while Mr. Adnan Malik has completed methodology and results etc.

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